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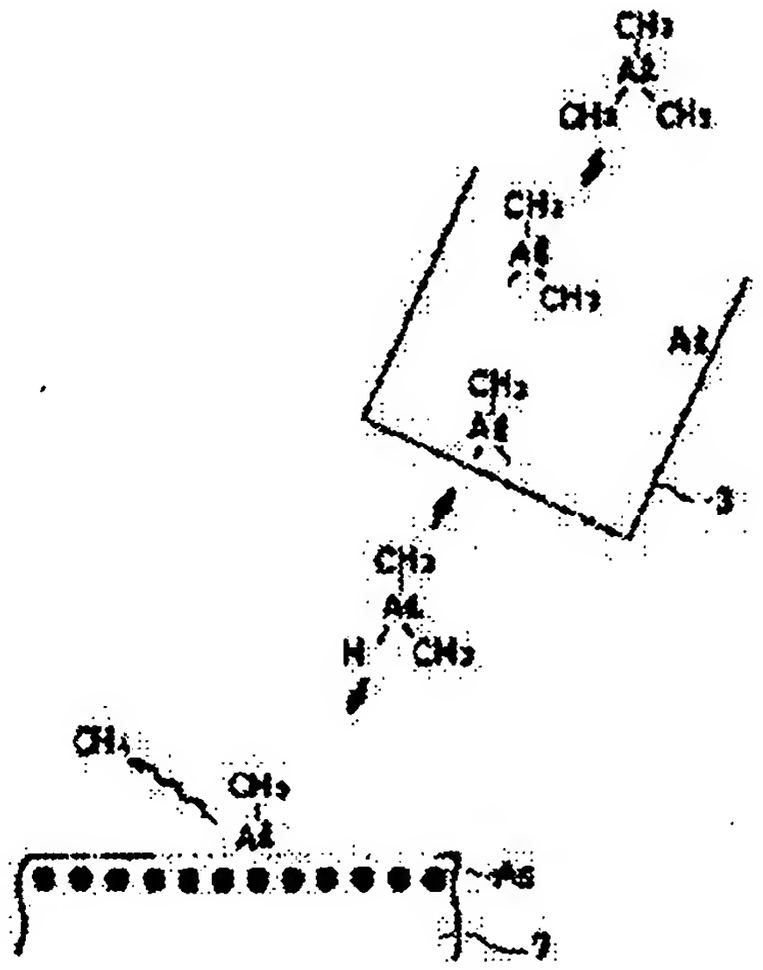
(54) ATOMIC LAYER CRYSTAL DEPOSITION METHOD AND DEVICE

(57)Abstract:
PURPOSE: To improve the adsorption efficiency at low temperature thereby enabling the title atomic layer crystal deposition of a compound semiconductor conventionally unrealizable to be made feasible by a method wherein at least one alkyl radical coupler coupled with a metal before the moleculers to be deposited reach a substrate is thermal-dissociated to be fed to the substrate to be deposited using the alkyl radical moleculers.
CONSTITUTION: (CH3)3Al having the self deposition stopping function passes through a quartz tube 3 to be thermal-dissociated into -(CH3)2Al, -(CH3)A-, Al atoms. At this time, the Al atoms stick to the inner wall of the quartz tube 3 while the couplers of -(CH3)2Al are coupled with hydrogen to be a stable H(CH3)2Al compound. On the other hand, -CH3Al-is also coupled with hydrogen atoms but to be so unstable compound that -CH3Al may be changed into H(CH3)2Al. Accordingly, the hydrogen of the (CH3)2Al reaching the substrate 7 surface is dissociated when Al reacts to As on the substrate surface so that Al and As may be easily coupled with each other into a compound at relatively low temperature. Through these procedures, the title atomic layer crystal deposition of a compound semiconductor conventionally unrealizable can be made feasible.



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